

What is botulism?

Botulism is a rare but serious paralytic illness caused by a potent neurotoxin produced by an anaerobic, spore-forming bacterium (*Clostridium botulinum*). There are three forms of botulism – foodborne, infant, and wound botulism.

Who is at risk?

Foodborne botulism can affect anyone who eats food that contains the botulinum toxin. Infant botulism almost exclusively affects children under 1 year of age. Intestinal botulism may rarely affect adults. Wound botulism, although rare, can affect anyone.

How is botulism spread?

Foodborne botulism is acquired by ingestion of foods in which toxin has been formed, predominantly after inadequate heating during canning or subsequent inadequate cooking (of the canned foods). Other less common sources of infection have been reported, including minced garlic in oil, improperly handled baked potatoes wrapped in aluminum foil, and home-canned or fermented fish.

Infant botulism is acquired by ingestion of botulinum spores which grow in the intestine and produce toxin. Possible sources of spores include foods (especially honey), and dust.

Wound botulism is often acquired from contamination of wounds or from improperly treated compound fractures. Injection drug users are at increased risk for wound botulism. Wound botulism from the use of black-tar heroin has increased, especially in California.

What are the symptoms of botulism?

Symptoms are due to the paralyzing effect of the toxin on the cranial nerves, and may include double vision, blurred vision, drooping eyelids, slurred speech, difficulty swallowing, dry mouth, and muscle weakness, with progression to paralysis, respiratory failure, and death. Incubation periods for each form of botulism are:

Foodborne: Symptoms usually appear within 12 - 36 hours after eating contaminated food, ranging 6 hours to 10 days.

Wound: Symptoms usually appear within 7 days after introduction of the bacteria, ranging 4 - 14 days.

Infant: Incubation period is unknown since it is usually not known when the spores were ingested.

Can botulism be spread?

There have been no reports of person-to-person spread. Botulism is considered a public health emergency, and the source, particularly if it is foodborne, must be identified.

How is botulism diagnosed?

Physicians may consider a diagnosis of botulism if the patient's history and physical examination suggest the disease, but these clues are often not enough to allow a diagnosis. Physicians may confirm diagnosis by:

Foodborne: Diagnosed by presence of botulinum toxin in serum, stool, gastric aspirate or incriminated food; or by culture of *Clostridium botulinum* from gastric aspirate or stool in a clinical case.

Infant: Diagnosed by presence of *Clostridium botulinum* organisms and/or toxin in patient's feces or in autopsy specimens.

Wound: Diagnosed by presence of toxin in serum or by culture of *Clostridium botulinum* from the wound.

How is botulism treated?

Specific treatment includes intravenous administration of tri-valent (ABE) botulinum antitoxin, available through the Centers for Disease Control and Prevention (CDC). The Iowa Department of Public Health is available 24 hours a day at (800) 362-2736 to facilitate shipment of the antitoxin. Antitoxin is not used in infants because of the hazard of sensitization and anaphylaxis. Serum should be collected to identify the specific toxin before antitoxin is administered, but antitoxin should not be withheld pending test results. Immediate access to an intensive care unit is critical so that respiratory failure, the usual cause of death, can be anticipated and managed promptly. The decision to administer antitoxin to asymptomatic persons should be weighed carefully, balancing the potential protection when antitoxin is administered within 1 - 2 days after eating the implicated food against the risk of adverse reaction and sensitization to the horse serum from which the antitoxin is derived. In foodborne botulism, other treatment may be warranted, including the removal of contaminated foods still in the gut by induction of vomiting or use of enemas. In wound botulism, the wound should be thoroughly cleansed and debrided, usually surgically. Tests to rule out myasthenia gravis, stroke, and Guillain-Barre syndrome should be completed before antitoxin is released by CDC.

How can botulism be prevented?

People who do home canning and use other food-preservation techniques should follow strict hygienic practices and observe proper canning techniques. Those eating home-canned foods should boil them for at least 10 minutes before eating to destroy the toxin. Because it can contain spores of *Clostridium botulinum*, honey should not be fed to children less than 12 months old. Wound botulism can be prevented by promptly seeking medical care for infected wounds, and not using injectable street drugs.